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## INTELLECTUAL PROPERTY LAW

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DATE: April 2, 2003

TO: Examiner Ralph Gitomer

FROM: Arthur Morgenstern

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## MESSAGE

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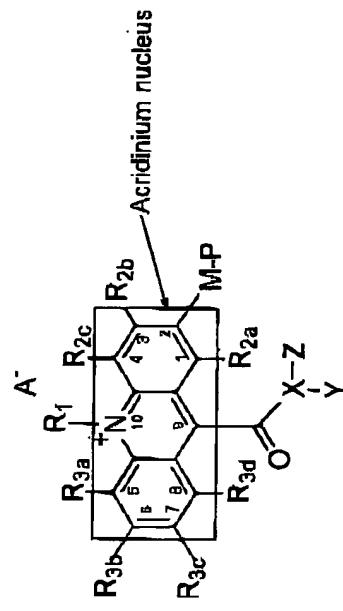
Examiner Gitomer:

Per your request, enclosed is a table showing structures that we believe  
should be searchable in STN or other databases and which represent the  
various structures claimed in claim 4 and its dependent claims (claims 4-  
17).
  
 Arthur S. Morgenstern  
 Reg. No. 28,244

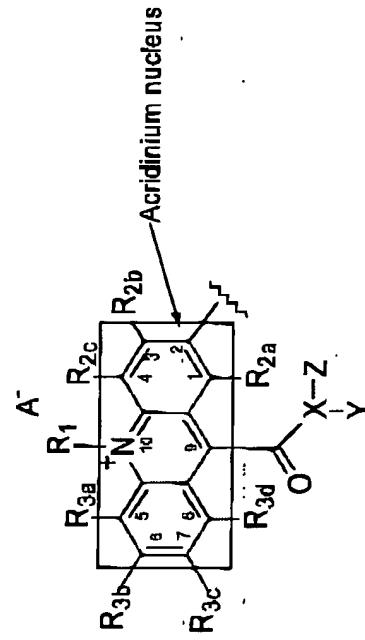
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288923

Qingping Jiang, 4/2/03

**Examples of chemiluminescent substrates of hydrolytic enzymes based on Claim 4**

In the table, L equals to Lum (Luminescent moiety), having the following structure:



M	P	Example of structure L—M—P	Example of hydrolytic enzyme	Support in page # and claims
O	$\text{PO}_3\text{B}$	L-O- $\text{PO}_3\text{Na}_2$ L-O- $\text{PO}_3\text{H}_2$ L-O- $\text{PO}_3\text{K}_2$ L-O- $\text{PO}_3\text{Ca}$ L-O- $\text{PO}_3\text{Mg}$  B is a divalent cation or two monovalent cations. It can be $\text{Na}_2$ , $\text{H}_2$ , $\text{K}_2$ , $\text{Ca}$ or $\text{Mg}$ .	Alkaline Phosphatase and Acidic Phosphatase	P.22, L.3-5 P.31, L.11-22 P.32 (formula VII) Structures 1A, 1C, 1E, 1G and 1I Claims 4-17 P.22, L.3-5
O	$\text{PO}_3\text{R}$	L-O- $\text{PO}_3\text{R}$	Phosphodiesterase	P.22, L.3-5
O	$\begin{matrix} \text{O} \\ \parallel \\ \text{C}-\text{R} \end{matrix}$ R = alkyl group	$\begin{matrix} \text{O} \\    \\ \text{L}-\text{O}-\text{C}-\text{CH}_3 \end{matrix}$	Cholinesterase	P.22, L.17-18
O	$\begin{matrix} \text{O} \\ \parallel \\ \text{C}-\text{R} \end{matrix}$ R = alkyl group	$\begin{matrix} \text{O} \\    \\ \text{L}-\text{O}-\text{C}-\text{R} \end{matrix}$	Lipase	P.22, L.17-18
O	$\text{SO}_3\text{B}$	$\begin{matrix} \text{L}-\text{O}-\text{SO}_3\text{Na}_2 \\ \text{L}-\text{O}-\text{SO}_3\text{H}_2 \\ \text{L}-\text{O}-\text{SO}_3\text{K}_2 \\ \text{L}-\text{O}-\text{SO}_3\text{Ca} \\ \text{L}-\text{O}-\text{SO}_3\text{Mg} \end{matrix}$  B is a divalent cation or two monovalent cations. It can be $\text{Na}_2$ , $\text{H}_2$ , $\text{K}_2$ , $\text{Ca}$ or $\text{Mg}$ .	Sulfatase	P.22, L.17-18
O	Sugar moiety		$\beta$ -Galactosidase	P.22, L.6-9
O	Sugar moiety		$\alpha$ -Galactosidase	P.22, L.6-9

O	Sugar moiety	$\text{CH}_2\text{OH}$	$\alpha\text{-D}(-)\text{-Glucosidase}$	P.22, L.6-9
O	Sugar moiety	$\text{CH}_2\text{OH}$	$\beta\text{-Glucosidase}$	P.22, L.6-9
O	Sugar moiety	$\text{CH}_2\text{OH}$	$\alpha\text{-Mannosidase}$	P.22, L.6-9
O	Sugar moiety	$\text{CH}_2\text{OH}$	$\text{N-Acetyl-}\beta\text{-D-glucosaminidase}$	P.22, L.6-9
O	Sugar moiety	$\text{CH}_2\text{OH}$	$\beta\text{-Fucosidase}$	P.22, L.6-9
N	$\text{C=O}$ R = peptide moiety	$\text{L}-\text{H}-\text{N}-\overset{\text{O}}{\underset{\text{C-R}}{\text{  }}}-\text{C}-\text{R}$	Various peptidases and proteases depending on sequences of peptides and proteins $\text{R} = \text{peptides with different sequences}$	P.22, L.10-16
S	$\text{C=O}$ R = alkyl group	$\text{L}-\text{S}-\overset{\text{O}}{\underset{\text{C-R}}{\text{  }}}-\text{C}-\text{R}$	Lipase $\text{R} = \text{alkyl group}$	P.22, L.17-18 Claim 4